IN THE SPECIFICATION

Please amend the paragraphs beginning on page 1, line 24 continuing to page 3, line 22, as follows:

--~~The~~One embodiment ~~as defined in claim 2~~ has the feature that it allows the use of thin-walled soft-magnetic parts, which reduces the overall volume and weight. Nevertheless, the radial magnetic field is powerful enough to change the viscosity of the magnetorheologic field in such a manner that the user can be given the impression of a stop which is unlikely to be overstepped.

Another~~The~~ embodiment ~~as defined in claim 3~~ prevents the magnetorheologic fluid from leaving the gap. To achieve this, it is necessary that the solid constituents in the fluid, such as metal particles, are kept away from the direct proximity of the bearing area because these would block the bearing and would cause braking effects, resulting in destruction of the bearing after a short period of operation. At the same time, a sealing element prevents the suspension substance of the fluid, which is generally water or oil, from escaping from the gap.

Another~~The~~ embodiment ~~as defined in claim 4~~ enables the rotary knob to be supported without any additional mechanical bearing means. The rotary knob then surrounds the non-movable stator in such a manner that the rotary knob cannot be pulled off the stator. The rotary knob this floats on the magnetorheologic fluid in the gap between the rotary knob and the stator, as a result of which a wear-free support is possible.

Another~~The~~ embodiment ~~as defined in claim 5~~ enables the rotary knob to be mounted on any electrical apparatus because it does not project into the housing and thus does not required any additional space in the interior of the apparatus.

Other~~The~~ embodiments ~~as defined in claims 6 and 7~~ enable the position of the rotary knob to be determined accurately. The use of the Hall sensors, through which a magnetic field is passed, the full range of rotation of 360° can be covered with satisfactory accuracy, the sensor also being capable of detecting the number of revolutions in the case that the angle of rotation is more than 360°. Moreover, the sensors operate in a contactless and therefore wear-free manner and can be integrated readily in the rotary knob. When the rotary knob has a push-button function in the axial direction, the same Hall sensors also enable a "depressed" or "non-depressed" condition to be detected, because the magnetic field through the Hall sensors differs in dependence on the push-button position.

~~Claims 8 through 11 define~~Other advantageous embodiments ~~as regards~~relate to the electronic control of the rotary knob. By means of such an electronic control it is possible to program a wide variety of feedback responses of the rotary knob. Depending on the use of the control element it can perform different functions and generate different feedback responses. Thus, the feeling of a stop can be obtained for a given angle of rotation so that this angle of rotation is not exceeded. For this purpose, an angle of rotation is programmed at

which the coil of the rotary knob is energized so as to produce a strong braking action. For this purpose, the instantaneous angle of rotation detected via the Hall sensors is compared with the programmed angle of rotation of the stop position and when this position is reached the current for the coil is applied. Since the user can often turn the rotary knob slightly beyond the stop position with impetus and excessive force, a function is provided which immediately cancels the braking action of the rotary knob when this knob is turned in the opposite direction. Without this function a user would briefly have the impression that the rotary knob sticks because the braking action would not cease until arrival at the stop position. It is also possible to give the user the impression of the rotary knob being latched in that the rotary knob is braked briefly. Depending on the braking frequency this latching impression may change into vibrations.

Other~~The~~ embodiments ~~as defined in claims 12 and 13~~ relate to particularly advantageous fields of use of the rotary knob in accordance with the invention. Thus, the rotary knob is particularly suitable for controlling graphical user interfaces. At each menu item the user will notice a short click, which may be louder depending on the importance of the respective menu item. This is particularly important in motor vehicles because the driver can now operate the user interface blindly in that he relies exclusively on the haptical feedback response of the rotary knob. As a result, he need not take his eyes from the road, which adds to traffic safety. At the same time, this enables the number of controls and switches of a cockpit to be reduced considerably because the

rotary knob can perform any number of functions. Moreover, the control element is also suitable for use in portables such a mobile phones because its current consumption is very low.

The user friendliness can be improved ~~further by means of the embodiment as defined in claim 14. Thus,~~in that a synthesized voice can comment verbally on a menu item of the graphical user interface being reached by the rotary knob, thereby giving the driver an unambiguous and clear confirmation of the selected menu items.

~~The embodiments as defined in claims 12 and 13 relate to particularly advantageous fields of use of the rotary knob in accordance with the invention. Thus, the~~The rotary knob is particularly suitable for controlling graphical user interfaces. At each menu item the user will notice a short click, which may be louder depending on the importance of the respective menu item. This is particularly important in motor vehicles because the driver can now operate the user interface blindly in that he relies exclusively on the haptical feedback response of the rotary knob. As a result, he need not take his eyes from the road, which adds to traffic safety. At the same time, this enables the number of controls and switches of a cockpit to be reduced considerably because the rotary knob can perform any number of functions. Moreover, the control element is also suitable for use in ~~portables~~ portable devices such [[a]] as mobile phones because its current consumption is very low.--

Please amend the first full paragraph on page 4 beginning at line 1, as follows:

--The can-type rotary control shown in Fig. 1 is intended for mounting in a housing wall 15. The control is essentially axially symmetrical with respect to an axis 16 and has a toroidal coil 1 accommodated in a soft-magnetic yoke ring 2, which generates a radial magnetic field in the area between its inner pole shoes and an outer soft-magnetic ring 3. Thus, the yoke ring 2 forms a magnetic circuit in combination with the soft-magnetic ring 3. The ring 3 is fixedly connected to the yoke ring 2 via a shaft 6 and a base plate 7 and is not rotatable. Conversely, a thin-walled actuating wheel 4, which surrounds the ring 3, is rotatable. The actuating wheel 4 can be manufactured, for example, as a two-part deep-drawing product in the form of a can or a lid. The gap 5 between the ring 3 and the actuating wheel 4 is filled with a magnetorheologic fluid. A magnetorheologic fluid is to be understood to mean a fluid whose viscosity changes under the influence of a magnetic field. When the coil 1 is now energized the shear stress between the actuating wheel 4 and the fixed ring 3 increases, as a result of which a braking action is obtained.--

Please amend the last full paragraph on page 5 beginning on line 25, as follows:

--Fig. 3 shows a rotary control having a laminated stator section 2 of a soft-magnetic material, which carries an armature winding 1 and which generates a radial magnetic field in a magnetically active gap 5 between the stator sections 2 and 2a. The stator section 2a also consists of a soft-magnetic

material. A ring-shaped non-magnetic rotor [[1a]]12, connected to a bell-shaped actuating member 4, is disposed in the gap 5. Furthermore, a magnetically active fluid is present in the gap 5. The stator sections 2, 2a are connected to the housing/mounting wall 7 by means of a suitable mounting flange 7a. The electrical connections between the rotary control and the electronic control device are passed through sleeves 7b. The rotor [[1a]]12 is supported relative to the stator 2 by appropriate means. In the area where the shaft 6 extends through the fluid container wall a suitable seal 1a [[12]] is mounted. The position detection sensing process can take place in the area 14a. This construction makes it possible to dispense with conventional bearings because in this case the rotary knob 4 and the T-shaped shaft 6 secured thereto are supported in the magnetorheologic fluid. The shaft 6 cannot leave the gap 5 owing to the shape of this shaft.--

Please amend the first full paragraph on page 7 beginning on line 9, as follows:

--Fig. 6 shows the signal waveform of Spos in the case that the rotary knob 4 is in the latching mode. For this, an essentially position-dependent braking action is produced. This braking function is stored in the electronic control device. Depending on the measured position signal Spos the armature coils 1 are energized in such a manner that the desired braking action of the rotary knob is produced. When the user turns the knob 4 this will give the user a feeling of an alternately positive and negative acceleration in the range between

p2 and p3, ~~Toothbrush~~ Tbr being the applied torque and Spos being the angular position as above. In addition, the execution of the braking function may be programmed to be also dependent on the measured velocity of rotation of the knob 4 and its direction of rotation.--